



ESTIMATED U. S. PETROLEUM BALANCE

SUMMARY

Third quarter data confirm that the rate of increase in total deliveries has been growing so far this year, as lower prices increased driving and fuel switching and growing air traffic continued to raise jet fuel consumption. Following a year of essentially no growth in 1985, total deliveries rose 1.2 percent in the first quarter of 1986, 2.4 percent in the second, and, for the most recent quarter, 3.9 percent.

September deliveries rose 4.0 percent (607 thousand B/D), with continued strong gains for gasoline, residual fuel oil, and kerosine jet fuel. Distillate deliveries declined, probably because earlier purchases reduced distributors' and end users' needs for current supplies.

Domestic crude oil production declined 4 percent (360 thousand B/D). Though the roughly 90 thousand B/D drop in Alaskan production was caused by a temporary interruption in pipeline operations, the more than 270 thousand B/D decline for the lower 48 continues a pattern of declines that has persisted since early this year when lower oil prices began to discourage the drilling of new wells and the maintenance of existing production.

Though OPEC members apparently cut crude oil production by close to 4 million B/D in September from levels that had risen to over 20 million B/D in July and August, transportation lags helped to account for September's imports increase to nearly 7.0 million B/D—a level even higher than August's recent-year record of over 6.8 million B/D.

In addition to satisfying increased demand and replacing declining domestic production, the high level of imports contributed to a more-than-seasonal inventory build of over 37 million barrels, three times the average of the prior three years and the largest September increase since the mid-70s. Distillate stocks rose to 150 million barrels, the highest level for that month since 1983.

PRODUCTS SUPPLIED^{1/}

Gasoline

STRONG GROWTH CONTINUES.

Gasoline deliveries rose 5.1 percent (338 thousand B/D) in September, following an average increase of over 4 percent during the June-to-August peak season. That September's increase is even larger than that of the summer driving season, when a greater proportion of price-sensitive, discretionary driving takes place, is somewhat unexpected. Though it could well be that the increase represents continued upward adjustment of demand to this year's markedly lower price levels, it appears more likely that September deliveries overstated consumption gains somewhat.

Unleaded grades now account for roughly 69 percent of gasoline sales, up about 4 percentage points year-to-year for the third quarter. Though lower prices and promotional efforts have increased motorists' substitution of premium unleaded for other grades—premium unleaded typically sells for less now than regular grades did a year ago—the continued turnover of the vehicle fleet and scrappage of vehicles using leaded grades remains the primary factor in market share changes. Of the 4 percentage point gain in share for all grades of unleaded, an estimated 1-1½ percentage points represents increased sales of premium.

Distillates

DELIVERIES DECLINE DESPITE LIKELY CONSUMPTION GROWTH.

Despite likely continued growth in diesel fuel consumption, distillate deliveries declined 2.4 percent (61 thousand B/D) in September. Diesel fuel sales are estimated to have continued their 3 to 4 percent growth experienced in the first half, adding 40 to 50 thousand B/D to September demand. Rail traffic has shown a modest recovery in recent months, though the impact on overall distillate use of September's 4 percent improvement is small; other sectors have shown little recent strength. Thus, September's distillate deliveries decline does not correspond with other indicators, which suggest that distillate consumption as a whole is edging upwards at a rate of about one percent. One explanation could be that earlier building of nonprimary inventories, which are not included in API or Department of Energy data, reduced distributors' and end users' requirements for current deliveries in September.

Residual Fuel Oil

FUEL SWITCHING RAISES DELIVERIES.

Residual fuel oil deliveries rose 27.3 percent (281 thousand B/D) in September, mainly on the continued strength of fuel switching at electric utilities. This switching has taken place primarily along the East Coast; electric utilities in Florida alone account for over a third of the 250 thousand B/D increase in petroleum purchases by utilities for the second quarter.

Electric utility purchases have caused residual fuel oil deliveries to rise strongly this year, but the overall effect on U.S. electric generation has been quite small—petroleum's share of energy inputs to electric utilities still amounted to only 5 percent in the first half of 1986. Though petroleum gained a percentage point in share compared to the similar period of 1985, nuclear and hydroelectric power together gained somewhat more. Reduced shares for natural gas and coal balanced the increases for other energy sources.

Industrial fuel switching, encouraged by residual fuel oil prices at about half of 1985 levels, has had only a minor apparent impact on total residual fuel oil deliveries, probably not greater than 30 thousand B/D. Nevertheless, numerous industrial users with dual-fuel capability have switched away from natural gas in 1986. Though some gas utilities have won back some industrial users with rate adjustments and gas transportation programs, these efforts have largely been only partially successful; the net shift in this sector towards oil has remained.

Kerosine Jet Fuel

AIR TRAFFIC INCREASES USAGE.

Strong growth in commercial air traffic continues to be reflected in deliveries of kerosine jet fuel, which rose 14.1 percent (141 thousand B/D) in September. The third quarter increase of 10.8 percent is approximately in line with increases in available seat miles in recent months of about 10 percent. The correspondence has been apparent over the longer term as well. Year-to-date, available seat miles have jumped about 12 percent, compared to only a 6 percent increase in 1985. Kerosine jet fuel deliveries have paralleled these traffic developments, with this year's more than 10 percent year-to-date increase also roughly doubling that of last year.

Other Oils

DOWN 1.3 PERCENT.

Deliveries of all other oils declined 1.3 percent (51 thousand B/D) in September. These products, taken as a whole, have followed a pattern contrary to the stronger growth of most major products this year. Last year, deliveries of all other oils increased about 1.1 percent overall; this year, deliveries are off 0.7 percent for the year to date, primarily because of a decline for liquefied petroleum gases amounting to roughly 100 thousand B/D. Contributing to this decline are ethane and propane, succumbing to less costly crude-oil-based petrochemical feedstocks, and in the case of propane, warmer weather early in the year.

SEPTEMBER ESTIMATES

YEAR-TO-DATE ESTIMATES

(In millions of B/D)

	1986	1985	% Change	1986	1985	% Change
—Total domestic products supplied	15.7	15.1	4.0	16.0	15.6	2.5
—Motor gasoline supplied	7.0	6.6	5.1	7.0	6.8	2.7
—Distillate fuel oil supplied	2.5	2.6	(2.4)	2.8	2.8	0.5
—Residual fuel oil supplied	1.3	1.0	27.3	1.4	1.2	18.2

SUPPLY^{1/}

The high import levels of the past several months continued in September, contributing to an increase in total supply of 1,453 thousand B/D despite a decline from domestic sources of 638 thousand B/D.

Production

PIPELINE PROBLEM REDUCES ALASKAN OUTPUT.

An Alaskan production decline of roughly 90 thousand B/D, the result of temporary pipeline difficulties, adding to a 270 thousand B/D drop in lower 48 production, brought the year-to-year decline in total U.S. production to 360 thousand B/D for September. For the third quarter as a whole, the decline of about 240 thousand B/D took place almost entirely in the lower 48.

Contrasting with stable production levels preceding this year's crude oil price drop, production outside Alaska has declined an average of 40 thousand B/D per month since the beginning of the year—an annual decline rate of nearly half a million barrels per day.

Imports

UP DESPITE OPEC CUTBACK.

Petroleum imports, which in August had already reached the highest level since 1980, rose to nearly 7.0 million B/D in September as additional crude oil, some of it lifted before OPEC's September production cutback, continued to arrive at U.S. ports. Half of the nearly 2.1 million

B/D increase in total imports is accounted for by greater inventory building this year than last; nevertheless, the effects of this year's substantially lower petroleum prices on domestic consumption and production have altered import requirements significantly. The roughly 500 thousand B/D annual decline trend for U.S. crude oil production and an upward trend in

deliveries of at least 600 thousand B/D imply a current underlying annual growth rate for imports of over 1 million B/D. Last year, by contrast, stable consumption and domestic production implied no net growth in import requirements.

Though the largest part of the import surge has come from OPEC producers, a significant portion has more recently come from other sources. Of the 1.5 million B/D increase in crude oil imports from the first quarter to the June-July period, more than 40 percent came from non-OPEC producers, including Mexico, the United Kingdom, and Colombia. A similar proportion of the 0.4 million B/D increase in product imports came from non-OPEC sources as well. Except for Colombia, the rise in non-OPEC imports largely reflects shifts in trade patterns rather than in production trends in non-OPEC countries and demonstrates the fungibility of petroleum on world markets.

Product imports rose 146 thousand B/D; residual fuel oil's 13 thousand B/D decline is largely the result of increased imports last September.

Refinery Operations

UTILIZATION CONTINUES ABOVE 80 PERCENT.

Input to crude oil distillation units continued at over 13 million B/D in September, a range that, except for the past several months, has not been achieved since the early 1980s. Gasoline output rose by about 10 percent over last September and distillate by 13 percent. Somewhat higher light product yields contributed to these production increases, though the bulk of these increases was

due to the nearly 8 percentage point increase in refinery utilization compared to last year. Utilization declined steadily during the month, though it remained above 80 percent through month end.

Inventories

MORE-THAN-SEASONAL RISE FOR PRODUCTS.

Total stocks have been rising almost uninterruptedly since May; September's high import levels brought the month's increase to over 37 million barrels, three times the average of the prior three years and the largest September increase since the mid-70s. Refinery utilization, high compared to recent years, helped to route all but 4 million barrels of the increase into product inventories. Gasoline stocks rose 11 million barrels, and distillate stocks, nearly 18 million barrels, both about twice the respective averages of the prior three Septembers. As a result, distillate stocks as the heating season approached were the highest since 1983.

SEPTEMBER ESTIMATES

YEAR-TO-DATE ESTIMATES

(In millions of B/D)

	<u>1986</u>	<u>1985</u>	<u>% Change</u>	<u>1986</u>	<u>1985</u>	<u>% Change</u>
—Total supply	17.6	16.1	9.0	17.1	16.0	6.5
—Crude production ^{2/}	8.6	9.0	(4.0)	8.8	9.0	(1.5)
—Crude oil imports ^{3/}	5.0	3.1	63.1	4.0	2.9	37.4
—Product imports	2.0	1.8	8.0	1.9	1.8	5.4

1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.

2/ Includes lease condensate.

3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 506 million barrels as of September 30, 1986).

ESTIMATED UNITED STATES PETROLEUM BALANCE

(Daily Average in Thousands of 42 Gallon Barrels)

Products Supplied/Supply From Primary Storage	SEPTEMBER			YEAR-TO-DATE		
	1986 ¹	1985 ²	% Change	1986 ^{3a}	1985 ²	% Change
Products Supplied:						
Total motor gasoline	6,967	6,629	5.1	7,020	6,835	2.7
Finished leaded motor gasoline*	2,164	2,272	(4.8)	2,223	2,463	(9.7)
Finished unleaded motor gasoline*	4,803	4,357	10.2	4,797	4,372	9.7
Naphtha-jet	196	208	(5.8)	208	216	(3.7)
Kerosine-jet	1,143	1,002	14.1	1,078	977	10.3
Distillate fuel oil	2,514	2,575	(2.4)	2,848	2,834	0.5
Residual fuel oil	1,312	1,031	27.3	1,394	1,179	18.2
All other oils ⁴	3,930	3,981	(1.3)	3,799	3,824	(0.7)
Reclassified ⁵	- 355	- 326	8.9	- 325	- 238	36.6
Total domestic products supplied	15,707	15,100	4.0	16,022	15,627	2.5
Exports	631	806	(21.7)	725	747	(2.9)
Total products supplied	16,338	15,906	2.7	16,747	16,374	2.3
Supply:						
Domestic production:						
Crude oil ⁶	8,594	8,954	(4.0)	8,839	8,973	(1.5)
Natural gas liquids	1,550	1,575	(1.6)	1,601	1,595	0.4
Other supply ⁷	442	695	(36.4)	732	749	(2.3)
Total domestic supply	10,586	11,224	(5.7)	11,172	11,317	(1.3)
Imports:						
Crude oil, total	5,029 ^{10/}	3,084 ^{10/}	63.1	4,001 ^{10/}	2,911 ^{10/}	37.4
Canadian	536	518	3.5	542	461	17.6
Other	4,493	2,566	75.1	3,459	2,450	41.2
Products, total	1,962	1,816	8.0	1,904	1,806	5.4
Residual fuel oil	605	618	(2.1)	618	475	30.1
Other	1,357	1,198	13.3	1,286	1,331	(3.4)
Total imports	6,991	4,900	42.7	5,905	4,717	25.2
Total supply	17,577	16,124	9.0	17,077	16,034	6.5
Stock change, all oils	+1,239	+ 218	XXXX	+ 330	- 340	XXXX
Refinery Operations						
Input to crude oil distillation units	13,238	12,096	9.4	12,802	12,026	6.5
Operable capacity	15,602	15,728	(0.8)	15,523	15,656	(0.8)
Refinery utilization (%) ⁸	84.8%	76.9%	10.3	82.5%	76.8%	7.4
Crude oil runs	13,131	11,925	10.1	12,698	11,869	7.0
Stocks (millions bbls.)	1986			1985 ²	% Change from ...	
	Sep. 30	Aug. 31		Sep. 30	Previous Month	Year Ago
Crude oil ^{10/}	335.1	331.6 ^{r/}		317.4	1.1	5.6
Unfinished oils	97.8	100.9		104.1	(3.1)	(6.1)
Total motor gasoline**	230.3	219.0 ^{r/}		223.1	5.2	3.2
Finished leaded motor gasoline*	68.9	69.4		76.1	(0.7)	(9.5)
Finished unleaded motor gasoline*	122.8	114.5 ^{r/}		111.3	7.2	10.3
Naphtha-jet	6.2	6.1		6.9	1.6	(10.1)
Kerosine-jet	43.0	42.6		35.2	0.9	22.2
Distillate fuel oil	150.0	132.3 ^{r/}		117.4	13.4	27.8
Residual fuel oil	43.6	40.8		43.4	6.9	0.5
All other oils	209.7	205.2 ^{r/}		165.7	2.2	26.6
Total all oils	1,115.7	1,078.5 ^{r/}		1,013.2	3.4	10.1

1/ Based on API estimated data converted to a monthly basis.

2/ Source: U.S. Department of Energy.

3/ Source: January-July, U.S. Department of Energy, August-September, API.

4/ Includes crude losses.

5/ Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from total domestic products supplied.

6/ Includes lease condensate.

7/ Includes unaccounted-for crude oil, refinery input of other hydrocarbons, and processing gain.

8/ Represents "input to crude oil distillation units" as a percent of "operable capacity."

9/ Derived by interpolating API weekly stocks data.

10/ Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.

R/ Revised.

* Included in motor gasoline.

** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.

ESTIMATED UNITED STATES PETROLEUM BALANCE

(Daily Average in Thousands of 42 Gallon Barrels)

Products Supplied/Supply From Primary Storage	3rd QUARTER		
	1986 ¹	1985 ²	% Change
Products Supplied:			
Total motor gasoline	7,324	6,963	5.2
Finished leaded motor gasoline*	2,248	2,409	(6.7)
Finished unleaded motor gasoline*	5,076	4,554	11.5
Naphtha-jet	201	209	(3.8)
Kerosine-jet	1,111	1,003	10.8
Distillate fuel oil	2,538	2,549	(0.4)
Residual fuel oil	1,423	1,086	31.0
All other oils ³	3,898	4,017	(3.0)
Reclassified ⁴	- 352	- 291	21.0
Total domestic products supplied	16,143	15,536	3.9
Exports	647	743	(12.9)
Total products supplied	16,790	16,279	3.1
Supply:			
Domestic production:			
Crude oil ⁵	8,662	8,901	(2.7)
Natural gas liquids	1,554	1,579	(1.6)
Other supply ⁶	519	827	(37.2)
Total domestic supply	10,735	11,307	(5.1)
Imports:			
Crude oil, total	4,832 ^{9/}	3,019 ^{9/}	60.1
Canadian	553	436	26.8
Other	4,279	2,583	65.7
Products, total	2,027	1,721	17.8
Residual fuel oil	640	491	30.3
Other	1,387	1,230	12.8
Total imports	6,859	4,740	44.7
Total supply	17,594	16,047	9.6
Stock change, all oils	+ 804	- 232	XXX
Refinery Operations			
Input to crude oil distillation units	13,197	12,330	7.0
Operable capacity	15,558	15,710	(1.0)
Refinery utilization (%) ⁷	84.8%	78.5%	8.0
Crude oil runs	13,095	12,141	7.9
Stocks (millions bbls.)	3rd QUARTER		
	1986 ⁸	1985 ²	% Change
Crude oil	335.1 ^{9/}	317.4 ^{9/}	5.6
Unfinished oils	97.8	104.1	(6.1)
Total motor gasoline**	230.3	223.1	3.2
Finished leaded motor gasoline*	68.9	76.1	(9.5)
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1/ Source: U.S. Department of Energy, July; August-September, API.

2/ Source: U.S. Department of Energy.

3/ Includes crude losses.

4/ Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from total domestic products supplied.

5/ Includes lease condensate.

6/ Includes Unaccounted-for crude oil, Refinery input of other hydrocarbons, and Processing gain.

7/ Represents "Input to crude oil distillation units" as a percent of "Operable capacity."

8/ Derived by interpolating API weekly stocks data.

9/ Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.

* Included in motor gasoline.

** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.